
**A Study on the Management Innovation of KORAIL
and Military Application
– Focusing on the Direction of Innovation in the
Military Medical Institution –**

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Abstract

This study aims to analyze the characteristics of the management situation of the Korea Railroad Corporation(KORAIL) through the management innovation process of the KORAIL and to suggest its implications for military application. Despite stable demand, the railway passenger industry had the limitation of not being able to abolish deficit routes due to public service obligations. In addition, the launch of the Suseo High-Speed Line has introduced a competitive system, posing a threat to corporate management. KORAIL wanted to overcome this crisis by innovating its management through the utilization of big data, improvement of the freight business, decentralization of demand, the introduction of tourism railroads, and development of station influence areas. By utilizing big data, KORAIL was able to optimize the railway fare system while reducing fixed costs spent on railway maintenance. It also drastically reduced the station of cargo and created a base station to pursue economies of scale. On the other hand, the existing exclusive station system was abolished to solve the chronic saturation of the downtown area, and the railway demand was moved to Gwangmyeong Station and Suwon Station to optimize the passenger supply. In particular, it developed a new business model called the tourism railway by developing the mountain Byeokjin Line, which was a chronic deficit line, and sought to improve liquidity through the development of the station influence area. Such a process of innovation at KORAIL suggests an appropriate direction in seeking ways to innovate the military medical institutions. First of all, the necessity of improving organizational immersion through the development of a personnel structure suitable for the compulsory organization, while expanding

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the facilities of the division and corps, and reducing the time required for medical treatment and waiting through the establishment of a data-based medical system was suggested. Next, it was also discussed to integrate the National Health Medical College, which received accreditation as a medical facility through the designation of advanced general hospitals and is ultimately under discussion with the Medical Institution. Through this, we hope that the military medical institutions, which are facing various challenges, will overcome existing limitations and be re-lighted as innovative institution that provides comprehensive public health services.

Key Words: Korea Railroad Corporation(KORAIL), Management Innovation, Military Medical Institution, SWOT Analysis, Case Study

1. Introduction

Companies are constantly asked to make efforts to respond to the ever-changing business environment. Changes in the business environment occur fluidly both within and outside the enterprise. As a result, an entity must continue its management innovation process to meet the new environment, and an entity that fails to meet these changes will face a management crisis. In other words, for sustainable corporate management, a management innovation process to meet the environment is essential. These attributes apply not only to market-type enterprises but also to administrative organizations. Similarly, administrative organizations are under pressure to respond to changing environments, and when they fail to respond, a crisis in the administrative organization occurs. The combination of efficiency and effectiveness of the administrative organization not only produces inefficiency on the national level but also aggravates the reliability of the national administrative organization, resulting in a deterioration of national competitiveness.

KORAIL is a company that achieved both corporate competitiveness and administrative efficiency through the management innovation process. The KORAIL is a public corporation under the Ministry of Land, Infrastructure, and Transport, which was established in 1963 and was established under the Korea Railroad Act in 2005. Its main projects include the construction and maintenance of railway equipment, maintenance of railway facilities, and major railway projects such as high-speed railway, trunk railway, wide-area railway, and airport railway. The KORAIL suffered a net loss of 2.87 trillion won in 2012 after posting a net profit

of 300 billion won in 2011, and its financial status deteriorated sharply in 2013 with a net loss of 4.46 trillion won. However, due to the nature of public transportation for the benefit of the people, the company was able to strengthen its competitiveness again by controlling inefficiency within the company and taking prompt action against the external environment (Korea Railroad Corporation, 2017).

Military organizations are also under constant demand for innovation to adapt to the changing security environment. Because military organizations have the attribute of simultaneously meeting the needs of the people of national defense and the protection of the interests of the people, and at the same time meeting the demands of achieving administrative efficiency as part of government organizations, defense management is characterized by increased complexity and sensitivity, and a shrewd response to changes in the external environment and situations within the organization. This is similar to the management environment of the KORAIL, which pursues both national benefits and corporate profit-making, and it is believed that analyzing the management innovation process of the KORAIL can provide implications to the military organization.

Currently, military organizations are faced with the challenge to reduce the budget and manpower required for unit operations under Defense Reform 2.0 and achieving both the pursuit of public interest and the reduction of costs. Total defense spending in 2018 was 43.2 trillion won, up 7 percent from last year. Of the total, defense improvement costs amounted to 1.3 trillion won, up 10.8 percent from last year, but power operating costs rose 5 percent from last year to 1.5 trillion won. This means that the nominal absolute amount of combat operational expenses have increased, but the actual combat operational expenses have decreased due to a decrease in the increase. The cost of combat operational expenses is divided into the cost of operating troops and maintaining combat. As the wage cost, which is equivalent to combat maintenance costs, increased by 9 percent, the proportion of combat maintenance costs has decreased relatively. The increase in combat maintenance costs is 2.2 percent, which is lower than the 7 percent increase in overall defense spending, and it includes items such as military facility operation management, administrative support, and education and training, which are required to reduce costs. According to Defense Reform 2.0, currently, under discussion by the Ministry of National Defense, a combat-oriented military structure is being considered to dismantle major national units and relocate the personnel to combat units (E-Daily, 2018), which is a major reorganization review to dismantle administrative support units such as the

Armed Forces Finance Corps and the Defense Facilities Headquarters to transfer functions to each military and to the private sector by dismantling some units such as the Military Printing Depot and the military medical institutions.

Even in the early days of the KORAIL's launch, it was considered a model for improving the deficit structure by abolishing some projects or transferring them to the private sector. However, the innovation process was made possible by reducing costs and developing new platforms without transferring or abolishing major functions to other institutions in accordance with the limitation that the promotion of national benefits could be limited. In this respect, this study suggests that defense reform can simultaneously enable cost savings and functional maintenance through managerial innovation. In the process of defense reform, the reform that can maintain its original function without abolishing the organization or transferring it to the private sector while maintaining the big direction of combat-oriented unit reorganization by reducing overall costs would be more reasonable. Therefore, the Korea Railroad Corporation's management innovation process is regarded as a major matter worth analyzing for the achievements of the military organization's defense reform.

2. Management Strategy Analysis

It is noteworthy about the nature of KRAIL's business is that urban-centered demographic changes and the revitalization of travel are becoming major social trends. In addition, the fact that the population structure of small and medium-sized provincial cities is being reorganized in the center of large cities is a major strength in railway transportation linking major hub areas,

<Table 1> The total amount of national domestic travel

Division	Experience rate		Number of participants		Number of entries		Total amount of movement	
	Total (%)	Growth rate(%)	Total (thousand people)	Growth rate(%)	Total (thousand times)	Growth rate(%)	Total (thousand days)	Growth rate(%)
2014	86.4	-0.1	38,059	0.7	227,815	-1.4	398,308	2.3
2015	87.9	0.7	38,307	0.7	238,297	4.6	406,818	2.1
2016	89.5	1.8	38,293	2.6	241,749	1.4	412,378	1.4

(Korea Tourism Organization, 2017)

and the fact that travel is being activated by improving living standards (Table 1) is also a major social trend affecting railway transportation.

Meanwhile, it is also noteworthy that the railway passenger market continues to grow despite the worsening performance of domestic air passengers and express bus passengers. Analysts say that this is because the positioning of the railway passenger service is currently at a suitable level for the needs of consumers. The improvement in average living standards has led to more consumers looking for passenger services that offer higher utility even if they pay higher prices, and the introduction of high-speed railways has responded appropriately to such changes in the market. The high-speed railway has been a threat to the bus passenger business by providing an excellent passenger experience despite its twice the price of express buses in the same section, and the growth of the railway passenger market is expected to continue due to its greater accessibility and convenience compared to domestic aviation services.

2.1 Five Forces Model Analysis

Developed by Michael Porter, the 5 forces model is an analytical method designed to determine the industry's return on five factors, thereby devising a company's future strategy. The factors presented in this model are competition within the industry, threats to potential entrants, competition for substitutes, vendor bargaining power, and buyer bargaining power.

The main projects of the KORAIL include the urban railway project and the railway passenger project. Due to the nature of the urban railroad business, each business operator is restricted from operating on different routes and is in direct competition. However, the competition system began after the advent of the company SR. SR Co., Ltd. was established in 2013 in accordance with the Ministry of Land, Infrastructure and Transport's "Railroad Industry Development Plan" to prevent excessive construction debt from aggravating the financial soundness of KORAIL during the Suseo High-Speed Railway construction project. It is currently competing with Honam Express Line and Gyeongbu Express Line south of Cheonan Asan Station. The SRT, a high-speed railway of SR Corporation, has successfully settled in Gangnam and southern Gyeonggi Province with the advantage of good accessibility and 10% cheaper fare than conventional KTX. As of 2017, the company posted a net profit of 32.1 billion won, emerging as a strong competitor to the KORAIL.

However, the threat of potential entrants in the railway industry is considered low. Railways

<Table 2> Number of bus services and transportation performance

Year	Number of vehicles			Transport performance (million people)		
	City bus	Intercity bus	Express bus	City bus	Intercity bus	Express bus
1985	20,522	10,117	1,689	6,632	820	70
1990	24,966	10,529	1,993	7,188	880	77
1995	29,309	8,829	2,438	5,688	533	54
2000	30,507	7,843	2,259	4,824	374	43
2005	31,537	7,491	2,091	4,537	246	38
2010	34,316	7,916	1,947	5,407	226	38

(Korea Transport Institute, 2013)

are a state-based industry with large capital input, characterized by huge initial input funds. According to the Korea Rail Network Authority, 3.1 trillion won was spent on the construction of the Suseo Station-Pyeongtaek Station section. As such, the railway project has a very high entry barrier for initial capital costs. Considering the current situation in which the KORAIL, the Korea Rail Network Authority, and the SR Corporation are discussing integration, it is unlikely that additional railway industry entrants will occur.

The substitutes for railway passengers include express bus passengers and domestic air passengers. However, bus and air passengers are losing their competitiveness as substitutes for rail passengers. Since its peak in 1995, the number of buses has been the same for transportation performance. Bus passengers can be assessed to be insufficient as a substitute for railway passengers. Accordingly, railway passengers are judged to have no competitive substitute at

<Table 3> Air Performance of Gimpo-Gimhae Line

Year	Number of flights(times)	Number of passengers(people)	Cargo(ton)
2001	36,248	5,604,692	74356
2003	32,631	5,393,532	69733
2005	21,628	2,861,589	39578
2007	21,024	2,653,644	25952
2009	22,577	2,304,335	20738
2011	19,746	2,343,306	21705
2013	18,666	2,013,546	13668
2015	18,684	2,334,144	14130
2017	21,353	2,741,550	13953

(Korea Airports Corporation, 2018)

present. Air passengers are on the same track. Since the opening of KTX in 2004, railway passengers have been absorbing domestic demand for flights, and the performance of air passengers has been deteriorating.

A supplier's bargaining power is the influence the Supplier has on the trade of goods and services. This is increased when there is a small number of suppliers, the supplier's products being imported to the consumer, and distinct product differentiation, and replacement costs(Kim & Lee, 2016). The main railway service provider is limited to KORAIL and SR Corp. and is recognized as an important service for the public's benefit due to its ability to guarantee punctuality compared to other means of transportation. This feature can be evaluated as strengthening KORAIL's bargaining power over the railway service market. The buyer's bargaining power is judged to be lower than that of the supplier. As railway services are not only preferred over other means of transportation but also because increasing supply to demand is very limited, the buyer has the nature of an acceptor who accepts the price and demand of the supplier.

2.2 SWOT Analysis and Management Innovation Process

The SWOT analysis analyzes the strengths and weaknesses within the entity, as well as the opportunity and threat factors outside the entity, to derive the strategy of the entity suitable for the market situation. Among the SWOT analysis conducted based on the KORAIL, the strength of the company's internal strength is the railway infrastructure and stable demand built nationwide. According to the Korea Railroad Corporation (Korea Railroad Statistics Yearbook, 2021), there are 688 stations nationwide as of 2020, and since 2008, there has been a steady demand of more than 1 billion people annually. In particular, the number of high-speed rail users exceeded 50 million in 2013, indicating that it has settled down as a stable import platform.

However, it is analyzed that the company's weakness is that it cannot abolish the deficit-ridden route in order to secure social publicity. Under the Framework Act on the Development of Railway Industry, the railway industry must perform both efficiency and public interest functions at the same time, so railway lines should be made to ensure the mobility benefits of the people living in remote areas. Due to the public service obligation, unprofitable lines in remote areas such as Gyeongjeon Line, Donghae Nambuseon, Yeongdong Line,

Taebaek Line, Daegu Line, Gyeongbuk Line, and Jeongseon Line have maintained the operations on the route. However, loss compensation for public services in 2016 was reduced from 211.1 billion won to 146.1 billion won (Yeonhap News, 2017), and the amount of non-compensation for public services increased to 920.7 billion won over the decade from 2005 to 2015 (ALIO, 2017). One weakness in the operation of urban railroads is the free transport system. Under the Welfare of Older Persons Act, free use of urban railroads is implemented for public facilities for those aged 65 or older. In 2016, a total of 2.5 billion people used urban railroads, of which 16 percent, or 4 percent, were free (Ryu, 2017). Considering that the ratio of the elderly population currently stands at 14 percent and the ratio of the elderly population increases to 20 percent in 2020, the deficit due to the free ride system is expected to expand. However, there is a need for legal institutionalization to ease the management burden as the government does not have a duty to compensate for the obligation of public services.

Meanwhile, the government-level project to expand railway infrastructure can be applied as an external opportunity factor for KORAIL. According to the Ministry of Land, Infrastructure and Transport's third national rail network plan, the government will invest 43 trillion won in building and renovating railway facilities by 2025. By doing so, the railway capacity of the Seoul Station-Susaek Station section, which had been restricted by a chronic lack of capacity, can be secured from 147 times per day to 387 times per day and the high-speed railway infrastructure will be expanded to 2,466 kilometers by expanding the high-speed railway line, which has a total length of 260 kilometers. In addition, the second phase of the Honam high-speed railway project, the double-track project between Pyeongtaek and Osong, and the expansion of the high-speed railway infrastructure are expected to improve the management conditions of the KORAIL. Meanwhile, the recovery of the property market, which had been contracted by the 2008 financial crisis, could also be a positive factor for the active discussion of the development of the station's influence area. With the construction of the Seoul metropolitan area currently saturated, it is difficult to secure a new site for the project, and the development of the station area could be a new growth engine for construction companies. This is expected to be an opportunity to improve financial soundness in the future in response to KORAIL's interest in securing liquidity by developing idle land.

The railroad industry has been an exclusive business of the KORAIL since the establishment of the Korea Railroad in 1963. It is difficult to analyze that the launch of urban railroads resulted in additional entrants in the urban railroad industry, but the operation of different routes

<Table 4> KORAIL SWOT Analysis

Strength	Weakness
(1) Nationwide railway facilities infrastructure (2) Stable railway demand	(1) Deficit due to public service obligation (2) Unable to abolish deficit routes
Opportunity	Threat
(1) Planning the Third National Rail Network (2) A project to develop station influence areas	(1) Suseo High Speed Line SRT

led to direct competition. However, with the launch of SR Corp. in 2013, the railway competition system became visible and the official opening of SRT in 2016 led to a full-fledged railway competition era. SRTs use the same lines as the existing KTX and are in real competition with the Korea Railroad Corporation. In particular, in southern Seoul and southern Gyeonggi Province, railway accessibility has improved by about 10 percent (Kim, 2017) compared to using the existing KORAIL station, posing a relative threat to KORAIL's competitiveness.

2.3 Dynamic SWOT Analysis and Innovation Process

Threat/Weakness strategy is a strategy that reduces internal weaknesses and avoids risks within the enterprise. KORAIL realized this by drastically reducing its cargo transportation business, which was a weakness within the company, and organizing vehicles in the station of deficit operation.

The freight railway project is a chronic enemy project of the Korea Railroad Corporation, which must be improved to stabilize its management. The number of cargo stations, which was 265 nationwide when the construction was launched in 2005, was reduced to 127 in 2013 eight years later and 50 more stations were planned to be further reduced. However, it was not completely abolished because the complete abolition of railroad transportation could hamper the development of the nation's industries, but instead, it was intended to strengthen the core capacity of railroad logistics. To this end, the Central Complex Logistics Terminal was established in April 2014, which was a combined station integrating Jochiwon, Cheongbu, Maepo, and Bugang stations, and was intended to promote the efficiency of freight transport through the central station by integrating the existing distributed freight stations. In addition, in

2017, the government started research on railway courier-only subways using urban railroads in an effort to find new businesses in freight transport while improving the amount of transport of service allowances through unmanned locomotives and heresy loading research.

The KORAIL wanted to save money on fixed facility asset management by actively utilizing big data technology, and in July 2016, it introduced the establishment of an early accident prevention system through big data. The previous accident management system focused on post-analysis through sample management of an accident that has already occurred, but after the accident big data is built through the total accident management system, accidents can be predicted in advance and accidents can be prevented. Furthermore, in July 2017, the IoT system needed for maintenance was established. Ultimately, the IoT with rail temperature, tram line, railway vehicle, and integrated control can be established to reduce the cost of establishing a scientific maintenance system for railway system management.

Meanwhile, the government also implemented strategies to enhance the efficiency of stations, which had been operating deficits. KORAIL's operation in the Seoul metropolitan area was concentrated on Seoul Station and Yongsan Station, resulting in inefficiency at Suwon Station and Gwangmyeong Station due to their low historical utilization rates. Accordingly, the government was faced with a problem in which the demand for the city section should be moved outside of Seoul, along with a strategy to increase passenger traffic in the city section, ultimately easing the burden on the city section. In December 2016, the Gyeongbu Line and Honam Line were divided into two stations, Seoul Station and Yongsan Station, respectively. Passenger railways, which had been allocated according to the final destination, were distributed in a flexible manner according to the spare platform and demand, thereby maximizing the utilization rate of the railways and improving the convenience of passengers. In addition, the project was carried out to expand the passenger supply to meet the demand of Suwon Station, but the high-speed rail lines do not pass even though the station has sufficient passenger demand because it has the downtown area. The speed limit existed not only because the number of trains stopping at Suwon Station was limited, but also because they passed the same low-speed railway as the existing one. In 2017, a new KTX line with Suwon Station was established to meet the demand of Suwon Station regardless of the saturation of the city section, and in 2018, a connection line to Jije Station was planned so that KTX departing from Suwon Station could enter the high-speed exclusive line.

Opportunity/Weakness strategy is to overcome weaknesses within a company through

opportunity factors. KORAIL's internal weakness is the operation of a mountain deficit route due to public service obligations. Demand for railways in the central inland mountainous region has continued to decline, causing chronic operating losses. However, it was impossible to abolish the Line located in remote to ensure the benefit of local residents. In 2013, O-train and V-train were introduced to overcome this dilemma. The improvement in the national standard of living resulted in increased demand for various tourism programs and effective acceptance of these demands. With the introduction of the tourism train, KORAIL developed a new profit-making model through the deficit line and earned 20 billion won over the three years since the introduction of the tourist train in 2013.

There was also a strategy to increase the demand for KTX Gwangmyeong Station. Gwangmyeong Station was built for the start and end of KTX, but due to a lack of demand behind it, it could not function as planned and its utilization was very low. As a result, despite the design to accommodate large trains, it was not able to utilize them and operated in the red. The opening of SRT Suseo Station also posed a threat to management as the demand layer overlapped. Therefore, the City Airport Terminal was introduced in 2018 to promote the differentiation and convenience of stations at the same time. Due to the low population behind the station, simply increasing the number of stations was limited in improving the utilization rate of the stations, so by introducing a service that makes the airport more convenient in the provinces to Gwangmyeong Station, local aviation demand was attracted to Gwangmyeong Station and the utilization rate of the stations was improved.

Opportunity/Strength strategy is a strategy that utilizes opportunity elements through strengths within the enterprise. KORAIL was able to combine its internal strengths with external opportunity factors through its project to develop station influence areas. Railway stations have the nature of the urban center, where the intersection of railway traffic and the two properties of the center of urban activity work in combination (Luca Bertolini and Tejo spit, 1998). The early railway station building was a building representing the urban center and served as an economic and cultural center. However, railway station buildings in urban areas have become subject to improvements because of the relatively weak weight of railways and the cultivation of disconnections between urban areas (Yang et al., 2011). Due to these interests, the development of the railway station building and the rear site was promoted in order to combine them and restore functionality as an economic and cultural center. KORAIL promoted the Yongsan International Business District development project in 2007 using the site of the

railway vehicle business located behind Yongsan Station. The project, which had a total cost of 31 trillion won, was bankrupt due to the 2008 global financial crisis, which threatened the management of KORAIL, but the real estate market improved, enabling the development of a model that could generate profits rather than large-scale integrated development.

In addition, the fact that large-scale additional investment in railway facilities is scheduled under the third national railway network construction project was also a big opportunity for KORAIL as it is centered on the establishment of a nationwide high-speed railway network and the construction of a high-speed urban railway in the Seoul metropolitan area, and it actively utilized it to make the construction of a high-speed railway Yeongdong Line a new platform.

3. Military Application Plan

3.1 SWOT Analysis of the Military Medical Institution

Under the Defense Reform 2.0, the military is currently required to save drastic power maintenance costs. With not only financial support but also human resources being reorganized around combat units, the current military's power maintenance system should maintain existing operational capabilities with limited costs and manpower. In line with this policy stance, the mandatory military service system is also expected to undergo drastic changes. The military medical institutions aim to protect the health of military personnel. However, the military medical institutions want to seek ways to improve KORAIL's management innovation, as a massive reduction is inevitable following defense reform.

The SWOT element analysis to derive the reform proposal of the military medical institutions is as follows. First of all, the strengths within the organization of the Mandatory Command can present comprehensive medical infrastructure across the country. The military has 14 general military hospitals, as well as comprehensive facilities such as the Armed Forces Nursing Academy, a four-year nursing college, and the Armed Forces Military Medical School, a specialized medical and conservative educational institution, the largest of its kind for general hospitals and educational institutions operated under a single institution. However, the lack of understanding of the senior commander's medical system may result in a lack of adequate support, which may not be regarded as a kind of service support facility rather than a medical

<Table 5> Military Medical Institution SWOT Analysis

Strength	Weakness
(1) Building a comprehensive healthcare infrastructure	(1) Low organizational immersion and personnel management (2) Lack of understanding of the medical system
Opportunity	Threat
(1) Establishment of the National College of Health and Medical Sciences (2) Expanding support for public health services	(1) Reduction and abolition of the military medical institution

facility. In addition, low organizational immersion and personnel congestion are also internal weaknesses. Military medical personnel generally work for mandatory service, which not only leads to low organizational immersion but also is often institutionally impossible for long-term service. It also has an organizational structure in which moral hazards can occur because there is no incentive for additional care.

In addition to these internal weaknesses, external threats also exist. According to Defense Reform 2.0, the ministry is currently considering abolishing the military medical institutions and converting military hospitals into medical facilities under the military's command. In addition, the policy direction was set to focus the specialized medical facilities and surgical facilities in each hospital on the Armed Forces Capital Hospital, the Armed Forces Daejeon Hospital, the Armed Forces Yangju Hospital, the Armed Forces Chuncheon Hospital, and other military hospitals to handle simple medical services by reducing their functions. The reason behind this is that the government wanted to increase the efficiency of military organizations by dismantling state-run organizations in accordance with the reform plan, which aims to reduce the number of military personnel.

On the other hand, external opportunity factors can suggest that support for public health care is expanding. Currently, demands for universal public health services are steadily expanding, but there is a lack of institutional support for them. Accordingly, the Ministry of Health and Welfare proposed a plan aimed at establishing a national health and medical college to train professional public health and medical professionals and expand public medical facilities. Both military hospitals and public health care saw the possibility of becoming an opportunity element for the military medical institutions in terms of providing universal medical services to which the state is the main body.

3.2 Military Medical Institution Innovation Plan

The innovation of the military medical institutions is intended to be presented in the following steps: Like KORAIL's innovation process, the first is to reduce the weaknesses in the organization to create a more functional and practical organization, followed by a new plan to utilize fixed facility assets. Finally, it uses its policy stance to secure new growth engines.

It is analyzed that the discussion of downsizing and abolition of the military medical institutions started with a cost issue, but the fact that such discussions were mentioned in earnest was due to low satisfaction with medical services. Due to distrust and dissatisfaction with military medical services, the assets invested are not used effectively due to the tendency of soldiers to prefer private hospitals and military hospitals for simple medical treatment. This is why discussions on reducing the function of the military medical institutions are being mentioned. In order to improve these problems, organizational commitment in the military medical institutions should precede. The main reason for low medical satisfaction is that it is not a lack of facilities and infrastructure, but the poor quality of medical services. In order to improve the quality of these medical services, it is essential that the executives of the military medical institutions, which provide medical services, are committed to the organization. Currently, there is no incentive for executives who wish to work on short-term services to increase their satisfaction with medical services. In addition, the lack of conditions for long-term service for executives who wish to serve long-term causes personnel congestion, resulting in a decline in organizational commitment. In order to improve this, the unique organizational structure should be reorganized and the normal promotion of executives should be possible. The implicit rule of an officer in the working-level ward and an officer in the administrative staff resulted in the shortage of manpower at the working-level and the lack of personnel in the promotion to officer at the same time. This is a field-type personnel structure that does not take into account the specificity of the hospital, and it should be considered to ensure normal promotion without being tied to the position in consideration of the specificity of the hospital. In addition, additional care and incentive payments based on medical service satisfaction should be considered for short-term service personnel.

Various ways to improve the satisfaction of medical services through personnel restructuring should also be taken into account. For example, activating the division and corps medical corps will greatly contribute to improving the medical services of military hospitals if a system is

established that allows medical treatment without having to go to military hospitals. It is analyzed that the reason why many soldiers want to see military hospitals right away without going through the division and the corps' medical corps is because of the division's low medical infrastructure. Therefore, it should also be considered to expand the medical corps' facilities to enable more practical medical services. Meanwhile, a data-based care system with nearby hospital facilities is proposed to reduce the waiting time for military hospitals. Like KORAIL's example of improving efficiency by effectively distributing trains through big data technology, it should study ways to effectively distribute patients to nearby hospitals and reduce waiting times through data-based treatment with nearby military hospitals.

Next, the designation of a higher general hospital would be a good solution. Senior general hospitals are hospitals that have secured command as specialized hospitals for severe diseases and are designated through certification by the Ministry of Health and Welfare. This is not only possible with a certain size of the sickbed, but also with a specialized medical system to complete a specialist. Currently, military hospitals are building infrastructure to function as medical facilities based in provincial areas, but they are not making effective use of it. Currently, the only advanced general hospital in South Jeolla Province is Chosun University Hospital. The Armed Forces Hapyeong Hospital has larger wards than Chosun University Hospital, but more than 50 percent of beds are left unused due to the special nature of military hospitals. It is suggested that the hospital's facility utilization rate is improved through cooperation with local medical facilities, not simply by opening hospitals to the private sector. Military doctors who graduated from the provincial-based medical college are assigned to military hospitals in the region to promote cooperation with private hospitals in the region and to pursue military service and specialist courses together. The medical institution also enables limited medical treatment in military hospitals for socially vulnerable groups, creating a medical environment for completing specialist courses, while also providing functions as a public health service.

Finally, we suggest the integration of the National Institutes of Health into the MCC. At present, research for the establishment of the National Health Medical College under the Ministry of Health and Welfare is in the beginning stage, and this was pushed to establish an institution that can train professional health and medical personnel in response to the lack of existing public health infrastructure. Therefore, the National Health Medical College can be integrated with the MCC to foster professional military personnel and foster public health and

medical personnel after discharge. In this process, the existing military hospital system and the improved civilian cooperative system can be used as an inducement to attract national health clinics.

4. Conclusion

This study was intended to analyze the management innovation process of the KORAIL to identify the characteristics of the management situation of the KORAIL and analyze the characteristics of its response to suggest its implications. For this purpose, the characteristics of the management situation were identified through SWOT analysis and 5 Forces analysis.

The strength of corporate management was stable demand through railway infrastructure across the country. Demand for railways is steadily increasing and is currently used by more than 1.2 billion people annually. Meanwhile, one of the weaknesses in corporate management is fixed costs arising from deficit routes. Despite the operating deficit of the remote-area Lines due to the railroad industry's obligation to provide public services, it is impossible to abolish the route to guarantee the convenience of local residents and proper compensation has not been made. In the urban railway business sector, the loss is expected to increase due to the free ride system for senior citizens and the aging population in the future, but no appropriate measures have been taken. Meanwhile, the construction of a high-speed railway capable of generating profits was planned continuously, and the construction industry improved, creating conditions for developing idle land. In contrast, with the launch of SR Corp., the full-fledged competition system in the railway industry has been introduced, posing a threat to corporate management.

KORAIL aims to overcome the management crisis through the management innovation process. Big data utilization, improved freight business, decentralized demand policy, the introduction of tourist railroads and development projects in station influence areas are the result of such an innovation process. Not only did KORAIL achieve optimization of the railway fare system by utilizing big data, but it was also able to reduce fixed costs for railway maintenance, and pursued an economy of scale by drastically reducing the station of cargo and creating a hub station. On the other hand, the government abolished the exclusive station system to solve chronic saturation in the downtown area and moved the railway demand to Gwangmyeong Station and Suwon Station to enable the optimization of passenger supply. It

also developed a new business model called the tourism railway by developing the mountain and remote-area Line, which was a chronic deficit line. Finally, the government sought to improve liquidity through the development of station influence areas by taking advantage of the opportunity of a favorable real estate market.

The innovation methods of the MCC presented in the direction of reducing weaknesses within the organization, such as KORAIL's innovation process, to create more functional and practical organizations, present new measures to utilize fixed assets, and secure new growth engines. First of all, the government should study ways to improve organizational commitment through the development of a personnel structure unique to military hospitals that are not tied to posts, while expanding facilities in divisions and corps medical corps to reduce medical needs in military hospitals and effectively disperse patients through the establishment of data-based medical systems to reduce waiting time. Next, the process of obtaining accreditation as a medical facility through the designation of an advanced general hospital is presented. To this end, institutional support is needed to push for cooperation with local hospitals and pursue military service and specialist courses together. Finally, a plan is proposed to improve the quality of long-term military hospital services by training public medical personnel and military medical personnel by integrating the National Health and Medical College, which is under discussion. Through these innovations, the military medical institutions, which are currently discussing abolition, will be reorganized to provide comprehensive public health services, while improving the quality of medical services, which will be beneficial to both the civilian and military.

The military organization is currently striving to contribute to the defense of the country, which is the original purpose of the military, while simultaneously pursuing cost reduction through intensive restructuring. This aspect is similar to the management situation of the KORAIL, which needs to promote public benefits, reduce costs, and pursue new business platforms at the same time. The fact that appropriate services should be continuously provided even in remote areas where it is difficult to generate profits is also a common feature of the two institutions. It is not difficult to find a situation in which general medical institutions that have to compete with other institutions are required to innovate, but innovation cases are not common in situations where a wide range of services are always provided with publicity like military medical institutions. As in the case of Jinju Medical Center, even public medical institutions can choose to abolish it in the private sector, but military medical institutions are

still inadequate to improve through such reduction. Rather, as in the case of KORAIL, it was judged that the existing advantage, its own infrastructure, should be actively utilized and grown using opportunities outside the organization. In that respect, it can be evaluated that it is meaningful to apply the management innovation process of the KORAIL to the military.

However, there is a clear threshold for such an application. The KORAIL was able to generate profits by developing a business platform because it takes the form of a market-type public corporation, but the military organization is constrained by improving its management structure through such profit-making. In addition, the culture of maintaining the existing system at the expense of dissatisfaction with medical services due to the closeness and stability unique to military organizations can also be a limitation. Nevertheless, through this study, we tried to present practical innovation measures by presenting a combination of elements of private cooperation and public policy stance, and we hope that the research will continue in a more advanced direction in the future.

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